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ABSTRACT

This guide is intended to assist adults working with youth in projects to improve the natural environment of their communities. Two types of environmental projects are described: (1) information projects and (2) work projects. Information projects involve youth in gathering information and then communicating it to the public and to community decision makers. Work projects are those in which young people do physical labor to improve the environment. Examples of youth-centered and adult-centered projects are given and considerations related to both are discussed. Finally, a short bibliography is presented. (Author/BB)

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Youth Action to Improve the Environment

by: Stephen F. Hamilton
A 4-H Community Development Project

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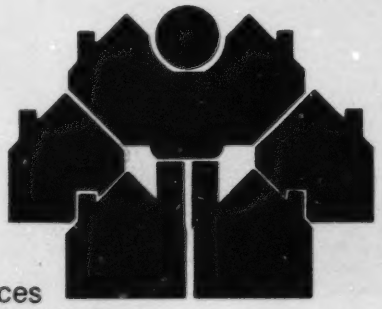

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Youth Action to Improve the Environment

Introduction

This guide is intended to assist adults working with youth in projects to improve the natural environment of their communities. I have assumed that a group of interested youth has already formed or that one can be formed easily. Therefore, the guide says nothing about the important step of bringing together a group of participants. I have also assumed that the reader either has, or has access to, appropriate technical expertise. A bibliography is included to suggest starting points in the search for supporting materials, but the subject matter is too broad for an exhaustive listing of sources.

Young people have a special concern for the quality of our air and water and for the wise use of natural resources. This concern was first demonstrated on a large scale by the millions of youth who participated in the first Earth Day in 1970. A nationwide survey conducted that year with over 10,000 youth revealed that conservation of the environment was seen as the most pressing of the nation's problems.*

Young people have good reason to be interested in environmental quality: they will live their lives and raise their own children under the conditions being created today. Furthermore, concern for the environment may draw upon a wide range of subjects and skills that interest them, for example, chemical analysis, identification and natural history of plant and animal life, map reading and drawing, photography, public relations, government, law, history, and economics. By participating in an environmental project, youth can develop these subjects and skills in connection with a real task rather than in a classroom. Concern for the environment also appeals to the idealism often found in adolescents. An action project gives an outlet to this idealism and tempers it with experience.

There are also advantages to the community as a whole in having youth undertake environmental projects. Citizens at large and decision makers seldom have as much information as they can use in deciding environmental issues. Young people can collect needed information and transmit it to the public and to local officials. They can provide time, energy, and skills to accomplish tasks that benefit the community. A community that provides opportunities for young people to be involved in significant activities will assure itself of an active and informed citizenry in the future.

Two types of environmental projects are described in the following pages: information projects and work projects. Information projects involve youth in gathering information and then communicating it to the public and to community decision makers. Work projects are those in which young people do physical labor to improve the environment. Although it would be possible

*Report on Poll 89 of the Purdue Opinion Panel, June 1970, p.7.

and desirable to combine these two approaches in one project, dealing with them separately helps to identify some of the different issues associated with each.

Information and work projects can both be distinguished according to whether they are youth-centered or adult-centered. A youth-centered project is one that is designed specifically for youth and carried out primarily by them. An adult-centered project is an activity that is normally carried out by adults but can accomodate participation by youth. Some of the considerations related to youth-centered and adult-centered projects will be discussed after examples of both have been described.

Environmental Information Projects: Youth-centered

Project LOST, Inc., (Laboratory of Scientific testing) is a group of 20 North Rockland High School students and recent graduates who are trying to preserve the Grassy Point marsh on the Hudson River. The tidal salt marsh is in danger of being filled in for use as an industrial site, in addition to facing the constant threat of pollution. In order to increase public awareness of the beauty, the ecological value, and the educational and recreational potential of the marsh, Project LOST staged a "Save the Marsh" festival during three days of August 1975. The festival was organized and run from the Project LOST trailer located in the Haverstraw landfill.

The festival included nature walks through the marsh, tours through the power plant and sewage treatment plant near the marsh, and a visit from the sloop *Clearwater*. Counting the visitors to all of the festival's attractions and the people who learned about the marsh through associated

publicity by radio, T.V., and newspapers, the young people made over 6,000 contacts with Rockland County residents. The future of the marsh remains in question, but Project LOST is currently pursuing two approaches to preserving it: the acquisition of scenic easements from property owners and outright purchase with federal funds designated for wetland preservation.

Project LOST grew out of the Advanced Chemistry classes taught in North Rockland High School. A Rockland County Cooperative Extension agent helped the group coordinate its efforts with those of two other student groups to design and implement a comprehensive study of the marsh and its tributary watershed. The agent also arranged for the students to meet with representatives of local government and industry to give them a balanced view of the trade-offs involved in preserving the marsh.

Project LOST members conducted studies of water quality, temperature, and flow, and of the plant and insect life of the marsh. They visited elementary schools to put on assemblies and work with individual classes. Some members pooled their savings to buy and equip a small van as a mobile laboratory. With the mobile lab they barnstormed fairs and shopping centers to demonstrate water-quality testing procedures and to appeal for help in saving the marsh. These appearances led to a number of requests for water testing by property owners and environmental groups. Some of these requests led to testing contracts, which provide a much-needed source of funds. Project LOST is licensed as a testing laboratory by the New York State Department of Environmental Conservation.

North Rockland High School provided the base of operations for the students and teacher-advisor, and made some equipment available.

School officials allowed participants to work outside of school during school time. Cooperative Extension provided contacts with community groups and government agencies and helped establish an advisory committee including representatives from the School Board, League of Women Voters, business community, and environmental lobby. Cooperative Extension also secured the 4-H Community Development grant from Cornell University that financed the "Save the Marsh" festival.

If the students of Project LOST succeed in saving the marsh, their community will have been enriched by the preservation of an important and irreplaceable resource. However, the students themselves will benefit regardless of the eventual disposition of the marsh. They have learned how to perform sophisticated chemical analyses of water and air. They have learned how to identify plants, insects, and aquatic-life forms. They have learned some of the requirements for organizing environmental research. Moreover, they have learned to make decisions and execute plans as a group, with all the emotions, compromises, increased sensitivity, and self-confidence involved in cooperative effort. They have learned to deal with adults and to respect the wisdom of community leaders even as they have tried to influence their decisions. And they have learned of the workings of local government as they struggled to accomplish their goals. Through their involvement in this project they have developed a strong commitment to each other and to the improvement of their community.

Site Identification

One of the most important steps in developing this kind of project is identifying a site for the study. If a group of young people becomes interested in a particular place or problem, this may happen without planning; but even then it would be wise to check the site against the following criteria:

1. The site or problem should be manageable. It should be possible for the youth to accomplish something substantial. The possible destruction of the earth's ozone layer by aerosols and supersonic aircraft is an example of an important problem that young people simply can't do much about through an environmental study.
2. The site or problem should be significant. It should be important to the whole community, adults as well as youth, and it should be important to the community's future.
3. The problem or site should be one about which decisions can be made on a local level and are likely to be made if sufficient attention is aroused.
4. The problem or site should offer participating youth opportunities for many different types of learning. Their work should not be limited to just one function, such as analyzing water quality. Rather the project should be like a tree that branches into many different subject matter and skill areas so that one participant can explore several branches and other participants who are interested in only one branch can contribute to the whole project by concentrating on their speciality.

The Ecological Approach

Ecology means interdependence. A project about the environment should reflect an ecological understanding not only of the natural environment but also of society. It is no service either to young people or to their communities to encourage a narrow-minded crusade. Young people should hear the opinions of industrialists and preservationists as well as conservationists. They should understand the choices inherent in conservation efforts. This is a difficult aim to achieve because so much of the discussion of environmental matters is done between "true believers" on both sides who refuse to acknowledge the complexity of the issues. The aim should not be neutrality, but the reasoned choice of a position and the ability to defend that position reasonably.

The ecological approach also implies a need to collaborate with and depend upon other groups, agencies, and local officials. Difficult as it is, building a broad base of support will accomplish a great deal more than independently advocating one group's opinion. This means that communication is an essential part of the project: communication among group members, with other groups and agencies, with the public, and with local decision makers. An environmental study group can learn a great deal by collecting information that they share among themselves. But they cannot influence community decision making without disseminating that information widely. The process of communicating is itself an important learning experience, involving such activities as publicity, writing, photography, and public speaking.

Environmental Information Projects: Adult-centered

Youth Membership in Decision-Making Bodies

Youth can be involved in environmental action and decision making through a wide variety of adult community organizations and activities. One method is appointing youth members to decision-making and advisory bodies. A few examples are: planning board advisory committees, Conservation Advisory Commissions, Environmental Management Councils,* land-use planning commissions, development commissions. The rationale for involving youth in these bodies is clear. Youth are citizens even before they reach voting age. They have both a right and a responsibility to participate in community decision making. Furthermore, they have a large stake in planning for the future of their community.

However, there are some special considerations that must be given to youth members of community bodies. One is that the youth members should be more than tokens. They should be chosen for their special interest and knowledge in the area, not solely because they are youth. Although they may be seen as representing the community's youth, they will be more effective representatives if they are unusually knowledgeable and committed. Second, youth members need some extra support, advice, and encouragement to enable them to participate effectively in a group of adults. They need someone with whom they can share their frustrations at the slow pace of change. Many of the adults who participate in community groups have years of experience; often they know other members well. This gives them an advantage over new members of the groups, especially young ones. Adult support can help overcome this disadvantage. Third, some provision must be made for turnover in youth membership. At the age of eighteen, many active youth leave their home community for college or work. Even if they remain in their community, they will lose contact with local high school students. Thus, a sixteen-year-old is likely to serve on a decision-making body for no more than two years. One way to deal with this predictable turnover is to appoint at least two youths of different ages so that as the older one leaves, the younger one remains to help orient a new youth member and provide continuity.

Youth Participation in Natural Resource Inventories

Another way to involve youth in adult-centered environmental activities is to include them in various environmental studies used in planning. The sophisticated research accomplished by youth in Project LOST demonstrates that they are capable of doing much of the work required by such studies. Some examples of studies are: preparation of environmental impact statements, monitoring of environmental quality, surveys of special features such as wetlands, and preparation of natural resource inventories.

*N.Y.S. legislation provides for the appointment of up to four youth between the ages of 16 and 21 to a county Environmental Management Council.

Activities of this kind give youth a place in important community work and an opportunity to learn not only the knowledge and skills required by the study but also the organizing and decision-making processes related to the study and its use. Communication of study results is an essential part of the activity and entails important communication skills.

Another positive aspect of this type of activity is that it gives youth an opportunity to meet a community need, namely the need for people to accomplish important work. Youth have time, energy, and intelligence which often has no outlet in community service. By participating in environmental activities, youth become a resource to their communities.

The natural resource inventory is a good example of this approach. I shall describe in some detail how youth can be involved in natural resource inventories as a guide and an example.

A natural resource inventory is a process designed to provide data for community land-use planning. It brings together information from a variety of sources and displays that information in a fashion that makes it accessible to decision-makers. The typical product of a natural resource inventory is a set of maps and transparent overlays showing factors such as current land use, soil type, drainage, slope, vegetation, and agricultural potential. In combination, these maps and accompanying data provide invaluable information regarding issues such as the location of land fills, sites for industrial development, and preservation of open space and unique natural areas.

The process of conducting a natural resource inventory involves locating the appropriate data and base maps, transferring the data to maps and overlays, and checking the accuracy of the maps produced. This process entails a knowledge of maps, skill at map making, and ability to find and interpret data from a variety of sources. Presentation of the completed inventory is an important phase if the information is to be used, and this requires a number of communication skills. This work is normally done by lay volunteers, often members of environmental management councils or conservation advisory commissions. Experts in the process agree that high school students are able to learn and use the skills required and can be centrally involved in natural resource inventories.

Although youth have been involved in a natural resource inventory in at least one town in New York State, sufficient information to describe an actual case is not available. Therefore, the following outline of the process of involving youth in inventories must be considered tentative. It is written with the assumption that a Cooperative Extension agent, who might be either a 4-H or Community Resource Development (CRD) agent, would play a facilitating or linking role. One or more members of a group charged with responsibility for conducting an inventory could also perform this role. It would be important, though, for such people to take responsibility for the tasks assigned to the Extension agent in the following outline.

The process of involving youth in natural resource inventories can be thought of as having four phases: preliminary, training, implementation, and completion/continuation.

Preliminary Phase

The preliminary phase has three steps. *First,* the Extension agent (or other adult, or group of youth) must learn about local plans for an inventory. This can be accomplished by consulting local officials, particularly the chairman or staff director of the Environmental Management Council or Conservation Advisory Commission. Members of the county legislature, town board, or planning commission may also be knowledgeable.

The *second* step, assuming that an inventory will be conducted, is to obtain the agreement of the officials responsible for doing the inventory to

the idea of involving youth. If these officials do not agree, then the work the youth accomplish might well be ignored; that would be a waste of their time and energy and a blow to their positive attitudes toward themselves and their community. If the officials do agree, then they should also agree to support the effort financially at least at the level they would have to support an effort by adults alone. At the least this means purchasing maps and supplies. It may also mean paying one or more adults to supervise the project. If the inventory would have been done professionally, it would be appropriate to use the money that would have been allocated to professionals to pay the youth for their work.

The *third* step of phase one is the recruitment of youth and adults to work on the inventory. The adults may be members of the Environmental Management Council or Conservation Advisory Commission who would normally be expected to conduct the inventory themselves on a voluntary basis. In this case, involving youth simply changes their role from taking sole responsibility for doing the work to helping the youth do the work. Youth can be recruited individually or as members of organizations such as ecology clubs, 4-H clubs, Scout troops, or science classes. Youth should be recruited from the community in which the inventory will take place.

Training Phase

The training phase prepares youth and adults to carry out the inventory. The Extension agent should take responsibility for arranging training. It involves skills in map reading, locating sources of data, transferring data to maps and overlays, and field checking information. This phase is important when adults conduct inventories and even more so when youth are involved. Youth involvement in a natural resource inventory will be a valuable experience only if they are held to the same standards of performance as adults. It is no favor to a young person to allow him or her to perform work of lower quality than would be expected of adults. Participants should use standard inventory methods so that the results are comparable to countywide and statewide information.

Training can be provided in several ways. Most often training is organized locally, on a county or town basis. Cooperative Extension personnel, County EMC staff, local professionals, or college faculty members are possible resources for training. Cornell's Resource Information Laboratory can provide training on a state or a local basis. Staff of the Department of Environmental Conservation can also assist in training.

Implementation Phase

The implementation phase has three steps. The *first* is the formation of the work group. The work group will include the youth and at least one adult advisor. Subgroups may be formed to carry out specific tasks. The role of the Extension agent at this point should be that of facilitator in the formation of the work group. He or she should help the advisor and members solidify their group and plan their work. Group formation should begin with agreement among the adults and youth who have been trained that they will conduct the inventory. Reaching explicit agreement on this point is important because some who participated in the training may be unready to make the commitment of time and energy required to complete the inventory. Commitment must be cleared up at the beginning to minimize

delays and misunderstandings later. Agreement should cover not only the goal of a completed inventory but also the specific parts of the inventory. After training, some members of the group may feel incapable of doing everything that has been prescribed. The group should establish as clearly as possible what the inventory will include. This may mean simply whether the group feels capable of producing an inventory that meets the standards prescribed by the local Environmental Management Council or the State Department of Environmental Conservation. The next aspect of group formation is scheduling and apportioning the work load to assure that needed work is done in the proper order and that each individual or subgroup knows what to do and when it must be completed. Finally, an atmosphere of mutual support should be established to facilitate problem solving as the inventory gets underway. The planning that will take place cannot possibly encompass all contingencies; problems are bound to arise. Proper attitudes and procedures will help solve those problems.

The *second* step is the actual conduct of the inventory. Adult support is crucial at this stage. Even though a high degree of youth responsibility is desirable, adult assistance is necessary. Youth may feel unready to begin their part of the inventory without some gentle encouragement. Some may lack appreciation for the need to follow schedules carefully. Others may simply not know how to get started. Adults need not be authoritarian to overcome these and other problems. Often they can get youth started simply by offering a ride and a helping hand with the first task.

The *third* step of the implementation phase is conveying the completed inventory to the responsible officials. This may be accompanied with formal presentations, news coverage, and public hearings. The youth should receive recognition for what they have accomplished and the opportunity to present their work to the community. The local officials, in turn, should make proper use of the information and let the youth know that it will be used. Proper use might be immediate application to local planning, transmission to the Department of Environmental Conservation, or storage for future reference and comparison (with provision for easy retrieval).

Completion/Continuation Phase

After the inventory has been prepared and presented, the group of youth and adults may simply disband. On the other hand, they may choose, in consultation with the Extension agent and with local officials, to continue their work in a variety of ways.

One way would be to expand the public awareness component. This might entail seeking further coverage by news media, preparing displays, making public presentations before community groups, and otherwise attempting to inform the public about the inventory process and findings. In this way,youth could help to educate the public to the local situation, proper resource use, and the need for land-use planning.

Another option would be to offer the group's services in preparing additional inventories or more-detailed inventories of specific sites as they are required in the future. The work group might even evolve into a continuing youth organization devoted to community service through environmental research.

A third option, similar to the second, would be for the group to plan and conduct regular monitoring activities to keep track of conditions identified through the inventory. This would also constitute a continuing organization, but would be devoted to continuous study. For example, if an inventory revealed a problem of soil erosion from new housing developments, the group might wish to make plans for checking erosion on a regular basis to collect data that could be used in devising solutions to the problem.

A fourth possibility, compatible with the others, would be for the group to advocate community action to overcome a problem or protect a site that has been identified through the inventory as being important. This option would make the inventory group very much like Project LOST and similar groups.

A fifth possibility, compatible with the others, would be for the group of youth to attempt to become involved in adult groups or even stimulate the formation of broad-based citizen groups to advocate environmental action. Youth participants in a completed inventory would be well prepared to serve as informed members of existing environmental groups.

Work Projects

For some youth, an environmental study project is simply too abstract, too much like school work, to be appealing. One way to involve more of these youth is to undertake a project involving physical work to improve the environment. Some well-known examples of this type of project are clean-ups and tree planting. These activities have been done by large numbers of youth in organizations such as 4-H and Scouts. They have some value, but seldom involve participants in long-range action or give them the opportunity to learn much about the larger issues involved in environmental affairs. Some more promising activities are becoming more common in youth groups, such as recycling programs and stream improvement, which give participants continuing responsibilities and expose them to a larger range of problems and issues.

The creation of nature centers is a particularly valuable work project for youth. The remainder of this section will deal with this approach to work projects.

Creating Nature Centers

As concern about the environment has increased, there has been growing interest in the establishment of centers for environmental education. These centers range from elaborate, professionally staffed centers such as the Rogers Environmental Education Center in Sherburne, New York to a half-acre tract behind a school building.

Nature centers can serve some of the same functions as a park. They are preserves for trees, plants, wildlife, and human relaxation. But more than that they are an educational resource that can be used in many ways. Families and informal groups can visit casually on weekends to view the displays and demonstration areas, and to tour the self-guided trails. School classes and organizations can arrange guided tours either for general nature study or to explore a specific area

of natural science. In some nature centers, advanced study and experimentation are conducted.

Some centers are described as outdoor education centers. This term includes not only nature study but also study of other subjects in the outdoors. For example, an outdoor education center might have a homestead site and offer activities designed to teach about the life of earlier residents in the community. It might also stimulate visitors to develop their mathematical skills by solving problems in the measurement of land and trees. Yet another kind of center focuses attention on the issues of land use planning. Regional maps, demonstrations of the dangers of unplanned development, and instruction in principles and techniques of planning may be found at such centers.

By participating in the development and maintenance of nature centers, young people can learn a great deal about the subjects involved in the centers. For example, planning a nature trail requires extensive knowledge of the plants, trees, wildlife, and topography of the area, appreciation of the problems in building a durable and attractive trail, and understanding of the functions that the trail will serve. The experience of working on a center can also provide other kinds of learning experiences. Young people may learn how to work together as a group, how to write educational and promotional materials, how to work with adults, and how local government functions in relation to their project.

Youth-centered

In 1974 Cortland County's 4-H camp was almost unused. Stricter health regulations and more rigorous enforcement had forced it to close as an overnight camp. Deteriorating facilities and

dwindling resources seemed to foreshadow the abandonment of the camp. Two things happened to revive the camp. First, the county legislature appropriated a substantial sum to refurbish the camp, influenced in part by members of the 4-H Teen Council who made sure each legislator received several phone calls in support of the camp. Then a proposal was approved for a Youth Conservation Corps project at the camp.

According to the "Information Sheet" distributed by the New York State Department of Environmental Conservation, which administers the YCC in the state, the YCC has three equally important objectives:

1. Accomplish needed conservation work on public lands.
2. Provide gainful employment for 15 through 18-year-old males and females from all social, economic, ethnic, and racial classifications.
3. Develop an understanding and appreciation in participating youth of the country's natural environment and heritage.

The outcome of the Cortland project can be viewed from two perspectives: the work that was accomplished and the learning of the participants. The work is easy to see and impressive in its scope and quality. Over two miles of nature trails were constructed, including several bridges, the largest of which spans 25 feet. Guide booklets were prepared for the "Transition Trail" and "Woodland Heritage Loop." The cellar hole of an old farm house was excavated as part of the "Homestead Trail." Forest and landscape improvements included thinning a larch plantation, clearing brush, and developing wildlife habitat. Camp facilities were improved to help the camp meet health requirements and to make it usable in the fall and spring. Work included building additions to the main lodge, demolishing unusable cabins, refurbishing other cabins, and building a storage shed.

The learning of participants is less easily observed. Trips to the Rogers Environmental Education Center in Sherburne and the Beaver Lake Nature Center in Baldwinsville were informative and stimulated participants' ideas about plans and facilities for Camp Owahta. The staff gave instruction in topics such as the succession of species and plant and tree identification, both in scheduled sessions and when "teachable moments" arose. The same combination of planned and spontaneous instruction was used in the critical area of safe and effective use of tools. Participants were encouraged to enter into the planning and decision-making process, and they made many decisions about matters such as where to locate trails and how to build a bridge. Many opportunities also arose for career education as participants did various jobs and talked with adults who came to the camp. Those adults included a forester, environmental educator, bus driver, conservationist, biologist, mason, heavy-equipment operator, and carpenter.

Participants were chosen from all over the county on the basis of recommendations from school guidance counselors. The group intentionally included participants with varied backgrounds. The majority were "average", neither outstanding leaders nor troubled youth. Because of the excellent leadership provided by the staff, this diverse group of young people did outstanding work and, in the process, became a cohesive group.

The YCC is sponsored nationally by the Departments of Agriculture and Interior. The federal government provided 50% of project costs. The remainder was made up from contributions of cash, goods, and services. Contributors included the New York State 4-H Foundation, the New York State Division for Youth, Cortland County 4-H Foundation, Cortland County Legislature, and several individuals and businesses.

One advantage of the YCC is that payment of participants attracts a much wider range of youth than a voluntary project normally would. Hence the group as a whole is likely to be much more

diverse in place of residence, social class, ethnic background, school performance, post-high-school plans, and race.

Voluntary labor can also be employed to build a nature center. Probably the easiest way to arrange this is to line up existing groups of young people to do specific tasks at specific times. For example, a Scout troop might be scheduled to build a half-mile nature trail on a Saturday, a building trades class to construct a pavilion during school time, and a 4-H club to clear brush on a school vacation day. It is also possible to form a group of youth who are willing to make a long-term commitment to creating the center and to use their labor regularly.

One important consideration in using volunteer labor is planning and coordination. A center cannot be attractive and educationally sound if each group of volunteers works independently. There must be an overall plan that each group contributes to. Otherwise, the pavilion may be built where the Scouts put their trail the previous week. One person should coordinate planning and scheduling work so that anyone who is interested in the center can contact one person to learn what needs to be done. This person should work closely with a group of youth and adults who have ultimate responsibility for the design and development of the center. Members of this group must have an idea of what they want to create and good information on what is possible at the site. One of the first steps in planning is to study the site carefully to learn what special features it has, what kinds of trails and areas can be developed, and where they should be located.

Provisions should be made in creating a nature center with voluntary labor for the involvement of different youth in different kinds of tasks. It should be possible for some youth to participate in planning while others come to work on a trail, for some to supervise work crews and others to prepare trail guides. The diversity of tasks makes it possible for youth with widely varied skills and interests to play a part. Opportunities for expanding a young person's interests and skills should not be overlooked. Someone who knows carpentry may be a good instructor for another who is an expert on ferns. The one may find learning about ferns enjoyable when working with the other to make an instructional sign. Everyone should be able to contribute the knowledge and skills he or she has and to learn new knowledge and skills.

Adult-centered

Adults are almost always the initiators and major decision makers for large-scale nature centers involving large amounts of land, permanent buildings, and professional staff. However, youth can be involved in both the planning and the labor that goes into the creation of elaborate centers.

The minimum level of youth involvement would be helping with the maintenance of an existing nature center. Groups of young people could assist in clearing brush, resurfacing trails, cleaning up litter, and refurbishing facilities. An activity of this sort might make a good community service project for an existing youth group such as a 4-H club or Scout troop.

A more challenging and educational level of youth involvement would be helping to upgrade and expand an existing center. Youth could work with adults to improve trail guides or signs and to create new trails and study areas. They could collect specimens for display and help construct new facilities. Youth could even help to create new educational programs.

Another way in which youth can participate in an existing nature center is by serving as guides. In many cases the best way to learn something is to try to teach it. The learning received by youth nature-trail guides before, during, and after guiding groups of people around a nature center would well repay the effort. In one county, plans are underway to form a corps of teenage trail guides who will be available to meet requests from school classes and other groups wishing to tour a nature center. Two factors are crucial in this type of project: training and coordination. Guides must all meet minimum standards of knowledge about a specific trail and the subject matter related to it, and of skill in presenting information and responding to questions. Once a group of trained guides is formed, their services must be publicized and organized in such a way that all have opportunities to work and to improve their skills.

Youth can also be involved in the planning and decision making for creating a new large-scale nature center. The most obvious way is to include youth with adults on whatever committees or boards are organized to plan the center. In addition, youth can help with some of the preliminary steps such as locating potential sites and collecting information about them, perform-

ing a complete inventory of a site, and making presentations for publicity and fund-raising purposes. Once youth are part of the planning process, there are many things they can do. The first and most important step is for youth to be there when the planning is being done. Unfortunately, adults tend to overlook youth at this stage, often without intending to exclude them. Sometimes the idea of involving youth never comes up for the simple reason that the adults meet during school time.

After the planning stage, youth can work independently or with adults to do the labor involved in creating a center. Several different approaches are possible. Work days might be scheduled when anyone from the community, youth and adult, is invited to come work on the center. This requires careful planning and supervision if the available energy is to be put to good use. Another approach is to invite only organized groups: clubs, school classes, institutionalized youth. This approach still requires planning but supervision is built-in. A third approach is to form a group whose main function as a group is to work on the center. This approach would be likely to work only if the youth were paid or if they were also involved in planning for the center. A combination of these approaches is also possible.

Most continuing activities, whether done by youth or by adults, revolve around a committed core group. The core group includes both the obvious leaders and the highly committed followers, all of whom are willing to put in time regularly and extensively. One of the best ways to involve youth in an adult-initiated nature center is to try to form a core group of youth who will paritcipate in planning, help with the labor, and bring other youth into the process on an occasional basis.

One potential problem with involving youth in helping to create adult-initiated nature centers is a difference in time perspective. An elaborate nature center might take five years or more just to plan. Many of the youth who became involved at the beginning of the planning will have left the community for education or work by the time it comes to fruition. Furthermore, a long period of committee meetings, fund raising, and proposal writing is not nearly as interesting to most youth as building trails. However, adults should not assume that their time perspective excludes youth. Some will become committed participants anyway. Involving youth of different ages, as recommended above for youth membership in decision-making bodies, provides some continuity in spite of turnover in youth participants.

A Comparison of Youth-centered and Adult-centered Environmental Projects

The preceeding examples of information and work projects using both the youth-centered and adult-centered approach suggest some comparative advantages and disadvantages to using either approach. The advantages of each approach are generally disadvantages to the other.

Youth-centered projects have the advantage of capitalizing on the peer orientation of youth. Young people like to be together and to identify with a group. By participating in a youth-centered project, a young person has the opportunity to form strong ties to a group of youth who are engaged in productive action. In addition, the fact that most of the people involved are young makes it possible for a young person to take a great deal of responsibility and to exercise some control over many aspects of the project. Participants in a youth-centered project can be relatively autonomous of adults. The extent of youth responsibility, control, and autonomy depends upon the skill with which adult leaders support youth in exercising and developing these prerogatives.

Adult-centered projects, in contrast, offer youth the opportunity to become involved in the larger community, which is composed primarily of adults. Youth participants then develop personal relationships with adults other than their parents or teachers, relationships that are too rare in our society. A second major advantage of involving youth in adult-centered projects is the relatively lower cost in terms of time and energy as well as money. Although adult support is crucial in both approaches, more volunteer adult advisors are available when youth become participants in adult-centered activities than when youth work on their own projects.

Ideally one community would offer its youth opportunities to participate in both youth-centered and adult-centered environmental projects. Practically, a choice must often be made. The choice should be based on the interests of youth and adult participants, the

unique opportunities in a particular community, and the resources available to support the project.

Some More Ideas for Environmental Projects

The preceeding examples are just a few of the many possible types of environmental improvement projects young people can do. A single project could combine several of the approaches described. Some more suggestions follow to stimulate thinking and demonstrate the range of possible projects.

Recreational Trails

In addition to using trails for nature study, as described above, people use trails for hiking, bicycling, horseback riding, cross-country skiing, snowmobiling, and motorcycling. Creating recreational trails involves assessing the need and potential use for them, finding suitable locations, obtaining easements from land owners or the government, laying out the trail, mapping, clearing, building bridges, controlling erosion, marking and publicizing the trail, and maintaining it. Assistance should be sought from appropriate organizations, such as hiking or snowmobile clubs. Trails on state land require approval from the Department of Environmental Conservation.

Environmental Quality Monitoring

Young people can perform regular tests on the quality of water or air and on amounts of noise in their communities. Regularity is essential. So is the use of standard testing methods if the results are to be used seriously. Such an activity must be done in collaboration with organizations or agencies concerned with maintaining environmental quality so that the results can be acted upon. Often such organizations or agencies lack sufficient resources to conduct all the monitoring they would like to do, and youth can fill that gap.

Environmental Impact Statements

Statements are being required for a growing number of proposed actions. Often they are prepared by professionals, but some voluntary groups have prepared statements, too. Youth can help such efforts. Most of the procedures described above in connection with natural resource inventories apply as well to environmental impact statements.

Recycling

Running recycling centers has been one of the most popular youth action projects to improve the environment. When scrap prices are high, recycling centers generate cash which can be used to support other activities. Another kind of activity related to recycling that youth might attempt is promoting recycling on a municipal or industrial basis. The most dramatic way to do this would be to conduct a feasibility study showing that a municipality or industry could save money by recycling. The technical challenge of such a study is formidable, but it would be very exciting.

Public Awareness and Legislation

Pollution control, returnable bottle laws, energy conservation, and protection of unique natural areas are among the kinds of issues facing law makers at all levels of government. Youth can influence decisions by contacting lawmakers directly and by urging others to do so. One of the only effective sources of influence young people have on legislation is gathering and disseminating information.

The use of mass media is an important tool in public awareness. Reports, brochures, and other written material can also be used. Exhibits, demonstrations, photographs, and films help to arouse interest. Classes or workshops can provide detailed information and training. One student ecology group organized a speakers bureau to spread their message.

Nonpolluting Energy Sources

Many young people are already involved in the search for simple and efficient methods of deriving usable energy from the sun, the wind, and other nonpolluting sources. Although a good deal of technical knowledge and skill is required, the field is new enough for gifted amateurs to make important contributions.

Wildlife Habitat and Stream Improvement

Many groups of youth have helped plant wildlife cover and food, made nesting boxes for waterfowl, or curbed stream bank erosion. This activity should be conducted in collaboration with responsible agencies and interested organizations. Most stream work and some activities affecting wildlife require the permission of the Department of Environmental Conservation.

Conclusion

The project examples and ideas in this guide indicate the endless possibilities for youth action to improve the environment. What you do will depend upon a combination of your interests and community needs. Participants in any project will have to make three major decisions:

1. What is our focal point?
2. What type of activity should we do?
3. What will be the relationship of youth to adults?

The first question has to do with the content of the project. Will it address a natural site, a single environmental issue, or a range of issues? The second question is related to the distinction between information projects and work projects. Will the chief activity be physical labor or the collection and dissemination of information? The third question asks whether the activity will be youth-centered or adult-centered. Will youth participate in an activity that adults would normally do without them or will they develop an activity primarily for youth?

Regardless of the answers to these three questions, any project needs both a committed group of youth and at least one skilled adult. Some projects provide opportunities for *occasional* participation by large numbers of youth, but all require that at least a few youth participate regularly and intensively to gain the knowledge, self-confidence, and skill to take leadership. Although it is conceivable that a group of youth would work without any adult assistance, most successful projects involve an adult advisor. This role is a difficult one to play because the advisor must be able to give assistance without taking initiative away from youth leaders and to share his or her expertise without dominating.

If you choose to attempt an environmental improvement project, you must be prepared for frustrations, not only in regard to the primary goal of accomplishing your tasks, but also in the equally formidable process of creating an effective working group. Your frustrations should be tempered by the realization that you are experiencing firsthand the joys and the trials of active citizenship.

Bibliography

1. Additional Information on Project Examples

Another excellent example of an environmental study project is described in *Little Sandy Creek Resource Study*. Copies can be obtained from:

Donald MacVean
Oswego County Cooperative Extension
Main Street
Mexico, New York 13114

The 4-H Agent in charge of the Cortland YCC Project was:

Thomas Dumas
Cortland County Cooperative Extension
55 Port Watson Street
Cortland, New York 13045

Copies of the final report on the Cortland YCC Project are available from:

Stephen Hamilton
Human Development and Family Studies
Martha Van Rensselear Hall
Cornell University
Ithaca, New York 14853

The contact person for YCC in New York State is:

Mike Cavanaugh
State and Private Forestry
Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233

2. Environmental Studies

Two publications are available specifically on natural resource inventories. One is the guidebook, *Natural Resource Inventory: A Guide to the Process*, by the New York State Department of Environmental Conservation (see address above). The second is a training program for inventory workers, *Natural Resource Inventory: A Training Program for Citizen Conservationists*, by James Ashton, P.O. Box 259, Millbrook, New York 12545.

The basic reference for environmental impact statements is *Guidelines for Environmental Impact Assessment: Terrestrial Resources*, prepared for the New York State Department of Environmental Conservation by the Institute of Environmental Program Affairs, College of Environmental Science and Forestry, SUNY, Syracuse, New York 13210.

Identification of plant and animal life in an environmental study can be facilitated by the use of field guides such as those published by Golden Press, Houghton Mifflin (the Peterson Field Guide Series), and William C. Brown and Company (the How to Know series).

Water-quality testing procedures are detailed in *Standard Methods for the Analysis of Water and Waste Water* (13th edition, 1971) by the American Public Health Association, 1740 Broadway, New York, New York 10019.

3. Nature Centers and Trails

The best source of written information and advice on nature centers and nature trails is:

The National Audubon Society
Nature Center Planning Division
1130 Fifth Avenue
New York, New York 10028

Their basic publication is *Trail Planning and Layout*, by Byron L. Ashbaugh and Raymond J. Kordish. A useful Extension publication is *Nature Trails: Guides to Environmental Understanding*, by James R. Fazio, Cornell Department of Natural Resources (4-H Leaders' Guide L-5-4). It is especially strong on trail signs.

Information on hiking trails can be obtained from:

Appalachian Trail Conference
Box 236
Harpers Ferry, West Virginia 02108

4. Public Awareness and Legislation

The Community Activist's Handbook, by John Huenefeld (Boston: Beacon Press, 1970), suggests a procedure for organizing a public campaign. *Action for a Change: A Student's Manual for Public Interest Organizing*, by Ralph Nader and Donald Ross (New York: Grossman, 1971), tells how to set up a Public Interest Research Group.

Two books that contain suggestions and resources specifically for environmental action campaigns are: *Man and His Environment: Citizen Action*, by Odom Fanning (New York: Harper and Row, 1975), and *Your Environment and What You Can Do About It*, by Richard Saltonstall, Jr., (New York: Walker and Co., 1970).

5. Other

A good reference on nonpolluting energy sources is *Producing Your Own Power*, edited by Carol Hupping Stoner (New York: Vintage (Random House), 1974).

A useful source on wildlife is *American Wildlife and Plants: A Guide to Wildlife Food Habits*, by Alexander C. Martin, Herbert S. Zim, and Arnold L. Nelson (New York: Dover, 1951/1961).

Extension agents working with youth environmental action projects should refer to the *Agent Handbook for Working with Citizen Conservationists*, by James Ashton and Donald White, Community Resource Development Specialists.

Price per copy $1.25. Quantity discount available.

Cooperative Extension, the New York State College of Human Ecology, and the New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, N.Y., and the U.S. Department of Agriculture, cooperating. In furtherance of Acts of Congress May 8, June 30, 1914, and providing equal opportunities in employment and programs. D. L. Call, Director 1/77 CU 1.5M